# Asthma in St. Louis City

## Promoting Healthy and Active Children

Asthma is a serious health issue for many children in Missouri and particularly in St. Louis City where the childhood prevalence doubles that of the state. Children with poorly controlled asthma are limited in their ability to participate in usual children's activities and frequently miss school which impacts their education and learning performance.

Children who have asthma experience episodes where they have difficulty breathing air into their lungs. Symptoms include shortness of breath, wheezing, chest tightness and coughing which is often the first symptom. The cause of asthma is unknown, but various "triggers" cause the airway to react with inflammation and narrowing, which leads to partial-to-complete obstruction. Some common triggers include tobacco smoke, mold, outdoor air pollution, common cold, flu and many other substances, irritants and allergens.

Triggers for an asthma attack vary from person to person but children are especially vulnerable to respiratory distress due to small airways. An asthma attack requires immediate relief using short-acting medication, thus the need to have access to this medication at all times is critical. However, the goals are to prevent and control such episodes through self- and care-giver planning and management, trigger reduction and avoidance, trained health professional assessment and monitoring, and use of prescribed daily control medication such as an inhaled corticosteroid. The health impact of asthma in a child can be minimized and the risk greatly reduced by these actions. Many terms as related to asthma are defined and information on the data systems described in the glossary.

### Childhood Asthma Prevalence

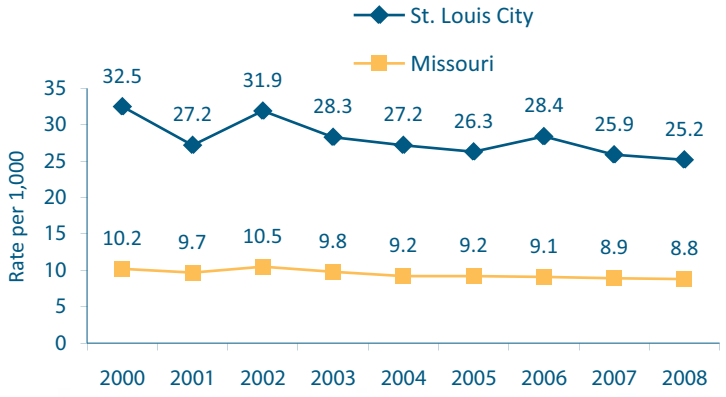
In Missouri, 14 percent of children age 17 and younger had ever been diagnosed with asthma, and the majority of those still had asthma (70.2%) representing about 145,000 children.[1,2]

- Current asthma prevalence among all Missouri children was 10.1 percent (95% confidence interval (CI) 7.8 - 12.4) compared to 19.6 percent (95% CI 10.9% - 28.4%) in St. Louis City in 2008.
- In the U.S., the current childhood asthma prevalence is estimated at 9.6 percent.[3]
- The current childhood asthma prevalence in St. Louis City is slightly higher for girls at 20.1 percent (95% CI 6.7% - 33.4%) compared to boys at 19.2 percent (95% CI 7.3% - 31.1%).

### Asthma Emergency Department Visits

- There were 2,038 asthma emergency department (ED) visits by children age 17 and younger in St. Louis City in 2008 accounting for 16.1 percent of all childhood asthma ED visits in Missouri and 48.3 percent of all asthma ED visits in St. Louis City.[4]
- In 2008, the childhood asthma ED visit rate in St. Louis City was 25.2 per 1,000 persons, which was higher than the state rate (8.8 per 1,000) (Figure 1).
- African-American children accounted for 91.9 percent of all childhood asthma ED visits in St. Louis City in 2008.
- The African-American childhood asthma ED visit rate of 37.5 per 1,000 was nine times higher than the white rate of 4.2 per 1,000 in St. Louis City in 2008.
- The 2008 childhood asthma ED visit rate was higher among males than females (29.7 versus 20.6 per 1,000) in St. Louis City.
- Several zip codes in St. Louis City with more than 300 ED visits for childhood asthma from 2006-2008 have high rates (Table 1).[5]

**Figure 1. Rate of asthma ED visits among children 0-17 years of age, St. Louis City and Missouri, 2000-2008**




## Table 1. Number and rate of asthma ED visits among children 0-17 years of age by zip codes, St. Louis City, 2006-2008

| Zip Code* | Number | Rate per 1,000 |
|---|---|---|
| 63104 | 509 | 36.0 |
| 63106 | 567 | 58.1 |
| 63107 | 501 | 38.1 |
| 63110 | 337 | 20.5 |
| 63111 | 439 | 26.5 |
| 63112 | 539 | 37.5 |
| 63113 | 501 | 45.0 |
| 63115 | 708 | 37.4 |
| 63116 | 592 | 16.8 |
| 63118 | 789 | 26.3 |
| 63120 | 367 | 29.6 |
| 63147 | 349 | 34.2 |

*Zip ccodes with more than 300 ED visits for asthma among children 0-17 years of age during this 3-year period.

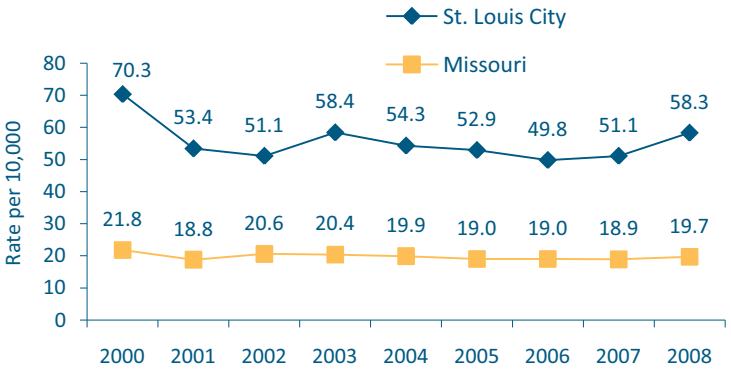
### Asthma Hospitalizations

- There were 472 asthma hospitalizations for children age 17 and younger in St. Louis City in 2008 accounting for 16.7 percent of all childhood asthma hospitalizations in Missouri and 40.4 percent of all asthma hospitalizations in St. Louis City.
- In 2008, the childhood asthma hospitalization rate in St. Louis City was 58.3 per 10,000 persons, which was higher than the state rate (19.7 per 10,000) (Figure 2).
- Several zip codes in St. Louis City with more than 100 hospitalizations for childhood asthma from 2006-2008 have high rates (Table 2).
- In St. Louis City, childhood asthma led to 870 days of hospital care in 2008 with an average of 1.8 days per hospitalization.
- Charges for childhood asthma hospitalizations in St. Louis City totaled $3.2 million in 2008 which accounted for 16.9 percent of all childhood asthma charges in the state.

### Asthma Deaths

- There were five asthma deaths among children age 17 and younger in St. Louis City between 2007 and 2009 accounting for one-fourth (26.3%) of all childhood asthma deaths in Missouri during this time period.

## Figure 2. Rate of asthma hospitalizations among children 0-17 years of age St. Louis City and Missouri, 2000-2008




## Table 2. Number and rate of asthma hospitalizations among children 0-17 years of age by zip codes, St. Louis City, 2006-2008

| Zip Code* | Number | Rate per 10,000 |
|---|---|---|
| 63106 | 112 | 114.7 |
| 63107 | 115 | 87.4 |
| 63112 | 113 | 78.7 |
| 63113 | 113 | 101.6 |
| 63115 | 150 | 79.2 |
| 63116 | 111 | 31.5 |
| 63118 | 134 | 44.7 |

*Zip ccodes with more than 100 hospital stays for asthma among children 0-17 years of age during this 3-year period.

# Resources

**Asthma Ready**
http://www.asthmaready.org/Story.aspx

**Healthy Kids Express, Children's Hospital**
http://www.stlouischildrens.org/content/HealthyKidsExpress.htm

**St. Louis Regional Asthma Consortium**
http://www.asthma-stlouis.org/resources.asp?ParentID=0

**St. Louis Visual Air Pollution Camera, Missouri Department of Natural Resources**
http://www.dnr.mo.gov/env/esp/aqm/archcam.htm

**St. Louis Regional Clean Air Partnership**
http://www.cleanair-stlouis.com

**Current Missouri Air Quality Index Report for Kansas City, St. Louis and Springfield**
http://www.dnr.mo.gov/env/esp/aqm/psiguide.htm

**Centers for Disease Control and Prevention**
http://www.cdc.gov/asthma

**Missouri Asthma Prevention and Control Program**
http://health.mo.gov/living/healthcondiseases/chronic/asthma/index.php

# Glossary*

**Asthma:** A chronic, inflammatory disease of the airways of the lungs. This swelling causes the airways to narrow. There is also an increase in mucus further narrowing the airways of the lungs making it difficult to breathe.

**Behavioral Risk Factor Surveillance System (BRFSS):** Random-digit-dialed cross-sectional telephone survey. Conducted by the Centers for Disease Control and Prevention (CDC), state health, universities and other agencies. Generates U.S. and state-specific information about health risk behaviors, clinical preventive services, disease prevalence, health care access, and other health related issues. BRFSS surveys the adult (18 years of age and older) civilian non-institutionalized population annually. (Available at: http://health.mo.gov/data/brfss/index.php)

**Confidence Intervals:** A range of values, calculated from the sample observations, that include the true value. For prevalence, the 95 percent CI will include the true rate 95 percent of the time, if the samples and calculations are repeated many times. The end points of the CI are called the Confidence Limits.

**Control:** Comprised of two parts - reduced impairment (prevent chronic symptoms, require infrequent use of short-acting relief medication, maintain normal lung function and activity levels, and meet expectations of and satisfaction with asthma care) and reduced risk (prevent recurrent attacks, minimize the need for emergency department visits or hospitalizations, prevent loss of lung function, or for children, prevent reduced lung growth and provide medication with optimal benefits and minimal or no adverse effects).

**Missouri Information for Community Assessment:** A public, web-based, interactive data portal developed and maintained by the Missouri Department of Health and Senior Services, Bureau of Health Informatics. (Available at: http://health.mo.gov/data/mica/MICA)

**Morbidity:** Refers to illness, disability or poor health due to any cause.

**Mortality Rate:** Number of deaths in a specified population, over a specified time period in a specified geographic area.

**Prevalence:** Number of existing cases of a disease during a certain time period in a specified population.

**Triggers:** Things that can bring on symptoms of asthma. Triggers are different for different people. Common asthma triggers include: cigarette smoke, cats, mold, mildew, dust mites, roaches or ragweed. Other common triggers are colds and flu, exercise, strong emotions, cold air, beer, wine, change in weather and some medication.

**Wheeze:** Difficulty breathing causing a whistling sound; often associated with chest tightness.

*The definitions are based on a combination of resources including the Centers for Disease Control and Prevention online glossary,[6] the Asthma Glossary[7] and other Missouri Department of Health and Senior Services source documents and staff descriptions.

# Data Sources


1. Missouri Department of Health and Senior Services. Missouri Behavioral Risk Factor Surveillance System Data Reports. Jefferson City, Missouri: Division of Community and Public Health. Available at: http://health.mo.gov/data/brfss/data.php

2. Missouri Department of Health and Senior Services. Population MICA. Available at: http://health.mo.gov/data/mica/PopulationMICA

3. Bloom, B, Cohen, RA, & Freeman, G. (2010). Summary health statistics for U.S. children: National Health Interview Survey, 2009. National Center for Health Statistics, Vital Health Stat, 10(247). Available at: http://www.cdc.gov/nchs/data/series/sr_10/sr10_247.pdf

4. Missouri Department of Health and Senior Services. Missouri Information for Community Assessment. Available at: http://health.mo.gov/data/mica/MICA

5. Missouri Department of Health and Senior Services. Rates of Asthma ED Visits and Hospitalizations by St. Louis City Zip Codes. Jefferson City, Missouri: Section of Epidemiology for Public Health Practice.

6. Centers for Disease Control and Prevention. Glossary. Available at: http://www.cdc.gov/cancer/npcr/uscs/data/00_glossary_include.htm#C

7. Rodriguez, J, Valderrama, Y, Surkan, P, Rudd, R, & Daltroy, L. (2004). Asthma glossary: keywords in plain language. Boston, MA: Harvard School of Public Health. Available at: http://www.hsph.harvard.edu/healthliteracy/files/asthmaglossary.pdf



*In St. Louis City, the childhood prevalence of asthma is double that of the state.*
*(19.6% versus 10.1%)*


Missouri Department of Health and Senior Services
Missouri Asthma Prevention and Control Program
health.mo.gov